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## Internet Protocol Captioned Telephone (IPCT)

*Captioned telephone services can now be provided over the internet in a wide variety of ways. Internet Protocol captioned telephone (IP Captioned Telephone or IPCT) can be any form of captioned telephone where the connection carrying the captions between the captioned telephone service and the captioned telephone user is via an IP addressed and routed link.*

### I. The FCC's current definition of captioned telephone VCO, contained in the 2003 order is:

Captioned telephone VCO is... any service that uses a device that allows the user to simultaneously listen to, and read the text of, what the other party has said, on one standard telephone line.<sup>1</sup>

This was later modified to allow for two-line captioned telephone where the voice is carried on the first line and the captions are carried on the second telephone line.<sup>2</sup>

### II. Suggested definition of IP captioned telephone:

Using similar language to the FCC's definition, IPCT can be defined as:

IP Captioned telephone VCO is any service that allows the user to simultaneously listen to, and read the text of, what the other party in a telephone conversation has said, where the connection carrying the captions between the service and the user is via an IP addressed and routed link.

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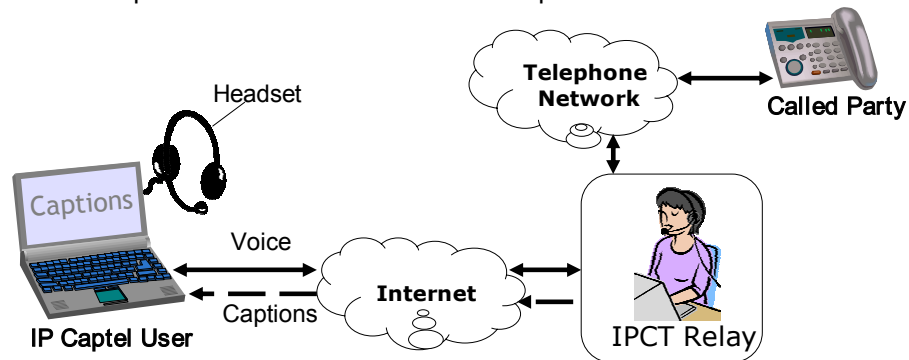
<sup>1</sup> *In the Matter of Telecommunications Relay Services, and Speech-to-Speech for Individuals with Hearing and Speech Disabilities, Declaratory Ruling*, CC Dkt. No. 98-67, FCC 03-190 (August 1, 2003) at ¶17.

<sup>2</sup> *Telecommunications Services and Speech-to-Speech Services for Individuals with Disabilities*, Order, CC Dkt. 98-67, CG Dkt. No. 03-123, FCC 05-141 (July 19, 2005).

### III. Some examples of how IPCT can be done using a computer with captioned telephone software

## Using a Computer as an IP Captioned Telephone

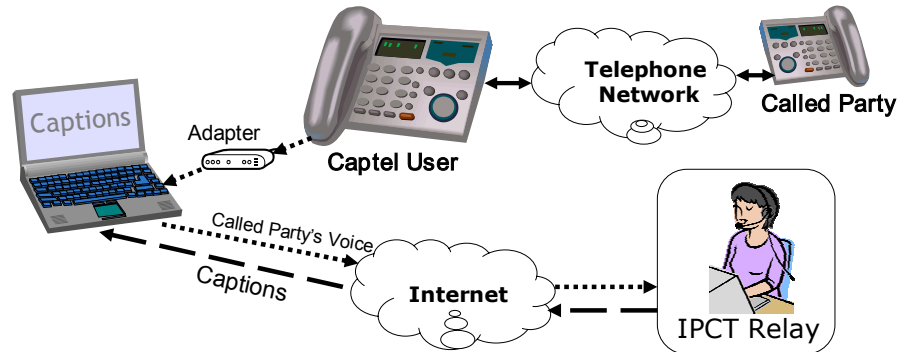
1. Computer is equipped with Captel software and a headset
2. User enters number of other party on computer screen
3. Computer connects over internet to IPCT Relay
4. IPCT Relay connects call to other party over telephone network
5. Captions are sent back to user's computer via internet



A simple example would be where the user's computer has software that allows the computer to operate as a captioned telephone. The user speaks into the headset microphone where their voice is digitized and sent via the internet to the captioned telephone service and from there to the called party. The called party's voice is captioned by the service and the captions together with the called party's digitized voice are sent via the internet to the user's computer screen and the headset earphones. The headset could be replaced with the computer's microphone and speakers or some other type of assistive device such as a HATIS device.

# Handset Method of IP Captioned Telephone

1. Handset of user's phone is connected to user's computer using an inexpensive adapter
2. User calls other party directly over the public telephone network
3. Called party's voice is transmitted over internet to IPCT Relay
4. Captions are sent back to user's computer via internet



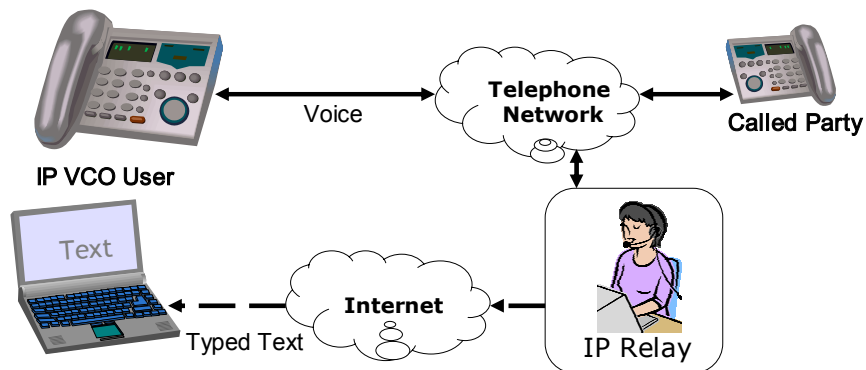
In this example the IPCT user connects the handset of their phone to a computer sound card using a simple, inexpensive adapter. The computer is equipped with software which separates the called party's voice and sends it over the internet to the IPCT service. The service then captions the voice and sends the captions back over the same internet connection to the user's computer screen. This method has the advantage of working for both incoming and outgoing calls. The user can also add captions to a call after the call has started and can turn captions on or off at any time during a call.

## IV. Some examples of how IPCT can be done with no special software

Because IPCT sends and receives both text and voice, the IPCT user has numerous options as to how the service can be set up. In some cases the IP captioned telephone user may prefer to use a second connection (VoIP, telephone, cellular, or otherwise) for the voice part of the call. This is the same as 2-line VCO and 2-line captioned telephone VCO and similar to the way "IP VCO" is done by IP Relay services today. There are two common methods currently in use by IP Relays for implementing IP VCO, both of which would work basically the same way for IPCT.

## VCO Methods for IP RELAY

1. User opens IP Relay website and gives user's call back number
2. IP Relay calls user back using public telephone network
3. User puts IP Relay on hold, dials other party, conferences IP Relay back into the call (3-way call)
4. Typed text is sent back to user's computer via internet



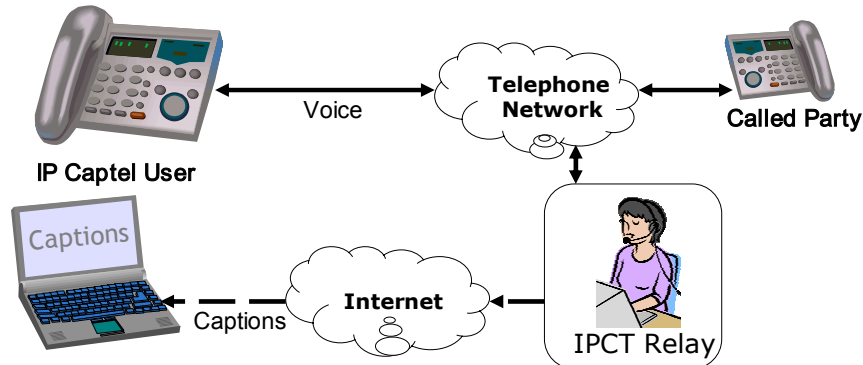
In the first “IP VCO” method, the user opens the IP relay’s website using a simple browser such as Internet Explorer™ or Netscape Navigator™ and has the IP relay call back over the public telephone network to the user’s *telephone* (which could be a VOIP phone, cell phone, land line phone, satellite phone, or any other kind of telephone), after which the user sets up a three way call with the called party and the IP relay. The IP relay then sends the typed text of the called party’s voice via the internet to the user’s computer screen.

The second “IP VCO” method is virtually the same as the first with one small change. The user contacts the IP relay service via the internet and again gives the IP relay a call back number to the user’s telephone. In this case however, the user also gives the IP relay the number of the called party and has the IP relay CA set up the three-way call. Again, the typed text of the called party’s voice are sent to the user’s computer screen over the internet.

The only difference between these two methods is who sets up the three way call, the user or the IP relay service. This method has the added advantage of not obligating the user to have 3-way calling capabilities on their telephone service, which reduces costs to the user. In some areas and with certain types of telephone services, 3-way calling capability may not be available.

## “VCO” Methods for IPCT RELAY

1. User opens IP Relay website and gives user's call back number
2. IPCT Relay calls user back using public telephone network
3. User puts IPCT Relay on hold, dials other party, conferences IP Relay back into the call (3-way call)
4. High speed captions are sent back to user's computer via internet

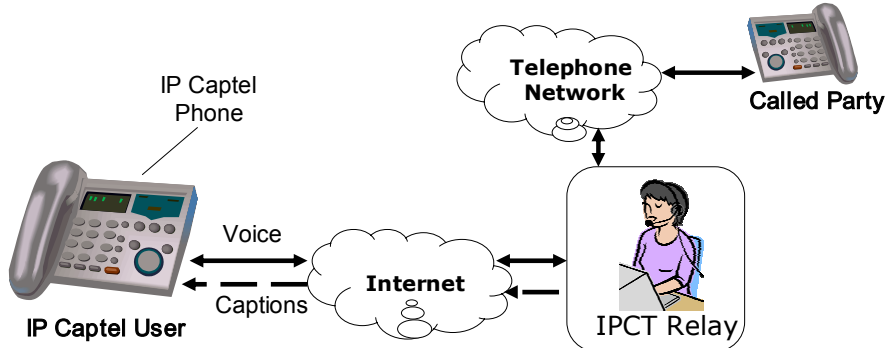


Whether the user or the IPCT CA sets up the 3-way call, both of the “IP VCO” methods work the same way for IPCT as they do for plain IP VCO. The main difference between IP VCO and IPCT is that IPCT relay uses voice recognition and other high speed transcription technologies (instead of typing) for a much faster and more functionally equivalent call. Also, the IPCT CA is completely “invisible” to both parties during the entire call.

### V. Using purpose built captioned telephones with IPCT relay

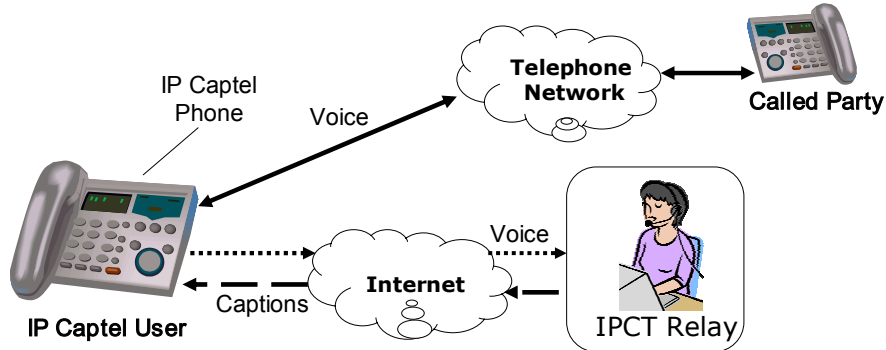
## Using an IP Captel Phone with IPCT Relay

1. IP Captel phone is equipped with an internet connection
2. User dials the number of other party on the IP Captel Phone
3. IP Captel phone connects over the internet to IPCT Relay
4. IPCT Relay connects the call to other party over the telephone network
5. Captions are sent back to the user's IP Captel phone via internet



## 2-Line IP Captel Phone

1. IP Captel phone is equipped with both an internet connection and a telephone connection
2. User dials the other party directly using the telephone network connection
3. IP Captel phone connects over the internet connection to the IPCT Relay
4. Voice of called party is sent to IPCT Relay by the IP Captel Phone
5. Captions are sent back to the user's IP Captel phone via the internet



## VI. Conclusion

In addition to the methods outlined above, a VoIP phone with captioned telephone capabilities, a cell phone with internet connectivity, or stand alone devices that couple the phone to the internet for captioning would also constitute IPCT so long as the connection carrying the captions between the captioned telephone service and the captioned telephone user is via an IP addressed and routed link.

The above are only a few of the many possible IPCT methods that could be used to provide captioned telephone service over the internet. With so many different types of equipment that could support IPCT and so many different methods already developed and in development, consumers will have a wide variety of choices of equipment and services from numerous manufacturers, retailers and IP and telephone service providers.